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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Philipp Lang

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EXAMINER

LU, TOM Y

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 09/942,528	Applicant(s) LANG, PHILIPP	
	Examiner Tom Y. Lu	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8-10, 12-31 and 48-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-10, 12-31 and 48-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/30/2007</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Request for Continued Examination filed 10/30/2007 has been entered.
2. Upon entry of the Request for Continued Examination, the amendment and written response filed 10/30/2007 is entered and considered.
3. Claims 5-7, 11 and 32-47 have been cancelled.
4. Claims 30 and 31 have been amended.
5. Claims 1-4, 8-10, 12-31 and 48-55 are pending.

### ***Response to Arguments***

6. Applicant's arguments, see Remarks, filed 10/30/2007, with respect to the rejection(s) of claim(s) 1-4, 8-10, 12-31 and 48-55 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Lee et al (U.S. Patent No. 6,430,427 B1) and DiFilippo et al (U.S. Patent No. 6,829,378 B2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, 8-10, 12-31 and 48-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al ("Lee" hereinafter, U.S. Patent No. 6,430,427 B1) in view of DiFilippo et al ("DiFilippo" hereinafter, U.S. Patent No. 6,829,378 B2).

- a. As per claim 1, Lee teaches a method to derive quantitative information (bone mineral density, column 2, line 9) from an x-ray image (column 2, line 1) comprising: providing a digitized x-ray image on a local computer (column 3, line 20), wherein the x-ray image includes an image of bone (column 3, line 44); analyzing the x-ray image at a computer, thereby deriving quantitative information on trabecular bone structure from the x-ray image (column 3, lines 44-67 and column 4, lines 1-24), wherein said information is selected from the group consisting of trabecular thickness (column 4, line 29) and two-dimensional or three-dimensional spaces between trabeculae (column 4, lines 7-10). Lee does not explicitly teach the computer is a remote computer in a network environment. DiFilippo teaches a user computer provides a medical image to a remote system for analysis (DiFilippo: figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to adapt DiFilippo's networking system in Lee to transmit a medical image data from a user computer to a remote computer and perform image processing at the desired remote computer. One would be motivated to do so because providing a more powerful computer at a remote location to perform image processing otherwise would need to perform at a local computer has cost advantages, see background section in DiFilippo.
- b. As per claim 2, the combination of Lee and DiFilippo discloses wherein the analysis of the x-ray image comprises using a computer program on the remote computer (Lee: column 2, lines 48-49).

Art Unit: 2624

- c. As per claim 3, the combination of Lee and DiFilippo discloses wherein said quantitative information includes densitometric information (column 2, line 9).
- d. As per claim 4, the combination of Lee and DiFilippo discloses wherein said densitometric information is bone mineral density (column 2, line 9).
- e. As per claim 8, the combination of Lee and DiFilippo discloses wherein said quantitative information includes information on the morphology of the bone (column 3, lines 60-67 and column 4, lines 1-24).
- f. As per claim 9, the combination of Lee and DiFilippo discloses wherein said information on the morphology of a structure is information on the two-dimensional arrangement of individual components forming said structure (column 3, lines 60-67 and column 4, lines 1-24).
- g. As per claim 10, the combination of Lee and DiFilippo discloses wherein said information on the three-dimensional arrangement of individual components forming said structure (column 4, lines 31-32).
- h. As per claim 12, the combination of Lee and DiFilippo discloses wherein said information includes two-dimensional or three-dimensional architecture of the trabecular network (column 4, lines 5-33).
- i. As per claim 13, the combination of Lee and DiFilippo discloses transmitting x-ray acquisition parameters to the remote computer (Lee teaches the using image gray levels on a trabecular pattern to obtain trabecular index, however, Lee does not explicitly explain the process of calculating trabecular index. Grunkin, U.S. Patent No. 6,411,729 B1, teaches such process in detail, see column 11, and the

process requires image acquisition parameters, such as filtering and spatial resolution and etc. The examiner notes Grunkin is cited to show public possession of the method of making and/or using, therefore, there is no need to provide motivation).

- j. As per claim 14, whether the acquisition parameters transmitted prior to the remote computer prior to, simultaneously or after the x-ray image does not affect the image process, thus it carries no patentable weights. In addition, the applicant does not state transmitting the parameters prior to, simultaneously or after the x-ray image would post any significant advantage or solve any particular problem. Therefore, the examiner herein takes official notice that the combination of Lee and DiFilippo can transmit the parameters prior to, simultaneously or after the x-ray image
- k. As per claim 15, see explanation in claim 14.
- l. As per claim 16, see explanation in claim 14.
- m. As per claim 17, see explanation in claim 13.
- n. As per claim 18, the internal standard is a distal radius bone, column 3, line 45 in Lee.
- o. As per claim 19, see column 3, line 57 in Lee.
- p. As per claim 20, see column 3, line 57 in Lee.
- q. As per claim 21, see column 6, line 12 in DiFilippo for HTTPS protocol.
- r. As per claim 22, see column 7, line 42 in DiFilippo for diagnostic report based on the image analysis.

- s. As per claim 23, the examiner notes a diagnostic report inherently provides information on a patient's state of health.
- t. As per claim 24, see figure 4 in Lee, the lower the Bone Mineral Density, the higher the fracture risk.
- u. As per claim 25, see column 8, line 35 in DiFilippo.
- v. As per claim 26, the DiFilippo's system is a computer system, which contains a computer program.
- w. As per claim 27, see column 3, line 44 in Lee and column 6, line 2 in DiFilippo.
- x. As per claim 28, the x-ray image in both Lee and DiFilippo are digitized.
- y. As per claim 29, the x-ray image is digitized from a x-ray film using a scanning unit, see column 3, lines 47-48 in Lee.
- z. As per claim 30, the examiner note although Lee does not explicit teach the x-ray image is acquired digitally, it is well known in the art such acquisition can be substituted for the scanning of a x-ray film. And one would be motivated to do so because it avoids an intermediate step of scanning the x-ray film, and Lee's system is to perform image analysis on a digital image, therefore, whether the x-ray image is acquired through scanning of the x-ray film or digitally, it does not alter the scope of the invention.
- aa. As per claim 31, the combination of Lee and DiFilippo does not explicitly teach the acquisition system is a selenium detector system or a silicon detector system. The examiner takes official notice that either system is suitable for Lee's system because the kind of acquisition system is irrelevant in Lee since the novelty of the

invention about performing measurements on the output of the acquisition system, a digital image.

bb. As per claim 48, the combination of Lee and DiFilippo teaches analyzing an x-ray image for osteoporosis (Lee: column 1, line 27-28).

cc. As per claim 49, the examiner notes the combination of Lee and DiFilippo does not explicitly teach providing suitable treatment for a patient's diagnosis. The examiner notes any qualified physician is capable of providing a treatment to the patient once the result of the bone analysis is produced by Lee's system. An official notice is taken here.

dd. As per claim 50, see explanation in claim 49.

ee. As per claim 51, see explanation in claims 8 and 9 above.

ff. As per claim 52, see explanation in claim 3 above.

gg. As per claim 53, see explanation in claim 48.

hh. As per claim 54, see explanation in claim 49.

ii. As per claim 55, see explanation in claim 50.

### ***Conclusion***

8. **Examiner note:** Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teaching for the art and are applied to the specific limitations within the individual claim, other passages and figures may be applied as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references

Art Unit: 2624

in entirely as potential teaching all or part of the claimed invention, as well as the context of the a passage as taught by the prior art or disclosed by the examiner.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y. Lu whose telephone number is (571) 272-7393. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571)-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tom Y. Lu/  
Art Unit 2624